

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION**

**FISHER-ROSEMOUNT SYSTEMS, INC.
and
EMERSON PROCESS MANAGEMENT
LLLP,**

Plaintiffs,

vs.

**ABB LTD, ABB, INC., ABB AB, and ABB
AUTOMATION GMBH,**

Defendants.

Case No. 4:18-cv-00178-KPE

JURY TRIAL DEMAND

**THIRD AMENDED AND SUPPLEMENTAL COMPLAINT FOR PATENT
INFRINGEMENT**

Fisher-Rosemount Systems, Inc. and Emerson Process Management LLLP (collectively “Emerson”), by and through their attorneys, for their third amended complaint against ABB Ltd (“ABB Ltd”), ABB, Inc. (“ABB Inc.”), ABB AB (“ABB AB”), and ABB Automation GmbH (“ABB Automation GmbH”) (collectively “the Accused ABB Entities” or “Defendants”) allege as follows:

NATURE OF THE ACTION

1. This is a patent infringement action arising out of the Accused ABB Entities’ “Select I/O” system, and products which are components of the system. Select I/O hardware and xStream Engineering software are marketed as a single channel I/O solution for use with the Accused ABB Entities’ “Ability 800xA” distributed control system. This case states actions for infringement against the products, systems and methods associated with the Accused ABB Entities’ Ability System 800xA with Select IO and xStream Engineering (“the Accused Products”), as further detailed below.

2. The Accused ABB Entities' acts, individually and as part of and in furtherance of a joint enterprise amongst the Accused ABB Entities and other entities controlled by the Accused ABB Entities, of making, using, selling, offering to sell and/or importation of the Accused Products infringe one or more claims of U.S. Patent Nos. 8,332,567, 9,411,769, and 7,684,875 (collectively, "the Asserted Patents"). Further,: a) ABB Inc.'s acts of making, using, selling, offering to sell, and importation of the Accused Products infringe one or more claims of the Asserted Patents; b) ABB Ltd's acts of selling and offering to sell the Accused Products, and controlling the infringing acts of ABB AB, ABB Inc., and ABB Automation GmbH, infringe one or more claims of the Asserted Patents; c) ABB AB's acts of using the Accused Products infringe one or more claims of the Asserted Patents; and d) ABB Automation GmbH's acts of offering to sell the Accused Products infringe one or more claims of the Asserted Patents.

THE PARTIES

3. Plaintiff Fisher-Rosemount Systems, Inc. ("FRSI") is a corporation organized and existing under the laws of Delaware with a principal place of business at 1100 W. Louis Henna Blvd., Bldg. 1, Round Rock, Texas, 78681. FRSI is a wholly-owned indirect subsidiary of Emerson Electric Co., a publicly traded Missouri corporation which serves as a holding company to several separate legal entities.

4. Plaintiff Emerson Process Management LLLP ("Process") is a limited liability limited partnership organized and existing under the laws of Delaware with a principal place of business at 1100 W. Louis Henna Blvd., Bldg. 1, Round Rock, Texas, 78681. FRSI owns a 94% limited partnership interest in Process; Emerson Process Management Holding LLC, another indirect wholly-owned subsidiary of Emerson Electric Co., owns a 6% general partnership interest in Process. At the time of filing the original Complaint, the 6% general partnership interest in Process was owned by Rosemount, Inc., indirect wholly-owned subsidiary of Emerson

Electric Co. For purposes of this action, FRSI and Process are referred to herein collectively as “Emerson.”

5. On information and belief, Defendant ABB Ltd is a foreign corporation organized under the laws of Switzerland with a principal place of business at Affolternstrasse 44, CH-8050 Zurich, Switzerland.

6. On information and belief, Defendant ABB Inc. is a Delaware corporation with a principal place of business at 12040 Regency Pkwy., Cary, North Carolina 27518.

7. On information and belief, Defendant ABB Inc. is a wholly-owned subsidiary, directly or indirectly, of ABB Ltd.

8. On information and belief, Defendant ABB AB, is a foreign corporation organized under the laws of Sweden with a principal place of business at 721 83 Vaesteras, Vastmanlands Lan, Sweden.

9. On information and belief, Defendant ABB AB, is a wholly-owned subsidiary, directly or indirectly, of ABB Ltd.

10. On information and belief, Defendant ABB Automation GmbH, is a foreign corporation organized under the laws of Germany with a principal place of business at Landsberger Strasse 320, 80687 Muenchen, Bayern, Germany.

11. On information and belief, Defendant ABB Automation GmbH, is a wholly-owned subsidiary, directly or indirectly, of ABB Ltd.

12. On information and belief, Defendant ABB Ltd controls ABB Inc., ABB AB, and ABB Automation GmbH and its other subsidiaries worldwide. According to ABB Ltd’s 2016 SEC Form 20-F, dated March 10, 2017 and signed by then CEO Ulrich Spiesshofer, ABB Ltd was formed in 1999 to be the holding company for the entire ABB Group of companies. “ABB

Ltd is the ultimate parent company of the ABB Group.” The same ABB Ltd Form 20-F states that “[o]ur business is international in scope and we generate revenues in numerous currencies” and that “[w]e operate in approximately 100 countries across three regions”, one of which is “the Americas”, which includes the United States. To its customers, investors and the public the collective group of entities headed by and controlled by ABB Ltd is referred to by the Accused ABB Entities as simple one “ABB”.

13. On information and belief, effective January 1, 2017, ABB Ltd divided the operations of its subsidiaries into four divisions: Electrification Products, Discrete Automation and Motion, Process Automation and Power Grids. The ABB Ltd 2016 SEC Form 20-F further states that “[t]he divisions benefit from sales collaboration orchestrated by regions and countries as well as from the group-wide digital offering, ABB’s low-cost centralized administrative structure, common supply chain management and corporate research centers.” The unification of the group of companies under ABB Ltd is further described in the Form 20-F, as follows: “We are adopting a single corporate brand, consolidating all our brands around the world under one umbrella. Our portfolio of companies is being unified, showcasing the full breadth and depth of our global offering under one master brand. The unified brand plays a key part in realizing the value potential of our digital offering, as we expect it will increase brand loyalty, price premiums and purchase probability.”

14. The Accused ABB Entities’ Ability System 800xA is generally developed and sold by the Process Automation Division through a direct sales force as well as “third-party channel partners.” ABB Ltd lists Emerson as a primary competitor of the Process Automation Division. ABB Ability is described as an “offering [that] combines our portfolio of digital solutions and services across all customer segments, cementing our leading position in the Fourth

Industrial Revolution and supporting the competitiveness of our four entrepreneurial divisions. With ABB Ability, we see an annual addressable market of up to \$20 billion.” In the same report for ABB Ltd, it states that “we have” thousands of “patent applications and registrations” and it protects the “ABB” trademarks and logos “in all of the countries in which we operate.”

15. On information and belief, the Accused ABB Entities have some officers and employees in common and/or said officers, managers and employees of one ABB entity act as representatives of other Accused ABB Entities. ABB Ltd holds it and its subsidiaries out to the market as a single entity, known simply as “ABB”. In particular, on information and belief, ABB Ltd, ABB AB, ABB Automation GmbH, and ABB Inc. share a common website <https://new.abb.com/> from which information about the Accused Products can be accessed. For example, on the Accused ABB Entities’ website the Accused Products are described as facilitating a “unified, cross-industry digital capability, from device to edge to cloud.” The website describes “ABB” as “a pioneering technology leader that works closely with utilities, industry, transportation and infrastructure customers to write the future of industrial digitalization and realize value.” ABB Ltd is further described as “a global leader in industrial technology. Based in Zurich, Switzerland, the company employs 135,000 people and operates in more than 100 countries.” As to the United States, “ABB’s North American operations are headquartered in Cary, North Carolina”, and “[t]oday, ABB stands as a global leader in industrial technology, and the US represents its largest growth market.” ABB Ltd, and its subsidiaries, also market its products and services throughout the world, including the United States, as a single business. ABB Inc. is the United States representative of the commercial organization headed by ABB Ltd.

16. The ABB Ltd 2018 SEC Form 20-F describes the continued unifications of ABB

Ltd as one global group with a single purpose. It states “[i]n December 2018, we announced our intention to simplify our organizational structure through the discontinuation of the existing legacy matrix, country and regional structures, including regional Executive Committee roles. Effective April 1, 2019, our new organization will provide each business with full operational ownership of products, support functions, research and development, and geographic territories.” The form further states that “[t]he businesses will be the single interface to customers, maximizing proximity and speed.”

17. One such business unit or division, which is not a legal entity, with “full operational ownership of products, support functions, research and development, and geographic territories” is the Industrial Automation division. On information and belief, the Industrial Automation Division is the new name for the Process Automation Division. ABB Ltd’s other business units are Electrification, Motion and Robotics, and Discrete Automation.

18. The Industrial Automation division “offers an extensive portfolio of products and software from stand-alone basic control to integrated collaborative systems for complex or critical processes. Solutions such as Distributed Control System (DCS) 800xA, provides a scalable extended automation system for process and production control, safety, and production monitoring.”

19. On information and belief, the Accused Products are part of the Industrial Automation division.

20. On information and belief, the Accused ABB Entities act as one, joint entity with global product and customer teams consisting of employees from various ABB Ltd subsidiaries and other affiliated entities.

JURISDICTION AND VENUE

21. This is an action for patent infringement under the patent laws of the United

States, which are codified at Title 35 of the United States Code.

22. This Court has subject-matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

23. This Court has personal jurisdiction over ABB Ltd for committing acts of infringement within this District. On information and belief, ABB Ltd directs business activities relating to the Accused Products in this State and specifically, within this District relating to the Accused Products such as making, using, selling, importing, and offering to sell as part of a joint enterprise. In addition, ABB Ltd individually directs business activities relating to the Accused Products in this State and specifically, within this District, relating to the Accused Products such as offering to sell and selling. In the alternative, this Court has personal jurisdiction under Federal Rule of Civil Procedure 4(k)(2) for the same business activities arising from the Accused Products.

24. This Court has personal jurisdiction over ABB Inc. based on its substantial business in the State of Texas and this District. ABB Inc. conducts and/or causes to be conducted business in the State of Texas related to the Accused Products and regularly conducts or solicits business, engages in other persistent business conduct, and/or derives substantial revenue from goods and products sold and services provided to Texas residents and the residents of this District. On information and belief, and subject to discovery, the Accused Products are designed, engineered and manufactured by affiliates of ABB Inc., with the assistance of ABB Inc., and imported into the United States and the State of Texas and assembled or made, used, sold and/or offered for sale in the United States by or on behalf of ABB Inc. Further, ABB Inc. has committed and will commit acts of infringement in this judicial district.

25. This Court has personal jurisdiction over ABB AB for committing acts of

infringement within this District. On information and belief, ABB AB directs business activities relating to the Accused Products in this State and specifically, within this District relating to the Accused Products such as making, using, selling, importing, and offering to sell as part of a joint enterprise. In addition, ABB AB individually directs business activities relating to the Accused Products in this State and specifically, within this District, relating to the Accused Products such as using the Accused Products and selling component parts of the Accused Products with knowledge that they will end up in this District. In the alternative, this Court has personal jurisdiction under Federal Rule of Civil Procedure 4(k)(2) for the same business activities arising from the Accused Products.

26. This Court has personal jurisdiction over ABB Automation GmbH for committing acts of infringement with the Accused Products within this District. On information and belief, ABB Automation GmbH directs business activities relating to the Accused Products in this State and specifically, within this District relating to the Accused Products such as making, using, selling, importing, and offering to sell as part of a joint enterprise. In addition, ABB Automation GmbH individually directs business activities relating to the Accused Products in this State and specifically, within this District, relating to the Accused Products such as offering to sell and obtaining component parts of the Accused Products with knowledge they will be sent and used in this District. In the alternative, this Court has personal jurisdiction under Federal Rule of Civil Procedure 4(k)(2) for the same business activities arising from the Accused Products.

27. Venue is proper in this Court under 28 U.S.C. § 1400(b). Specifically, ABB Ltd is a foreign entity that has committed acts of infringement in this State, and, on information and belief, in this district. On information and belief, ABB Inc. has committed acts of infringement in the Southern District of Texas and has regular and established places of business in the Southern

District of Texas. ABB AB is a foreign entity that has committed acts of infringement in this State, and, on information and belief, in this district. ABB Automation GmbH is a foreign entity that has committed acts of infringement in this State, and, on information and belief, in this district.

28. ABB Inc. maintains at least one regular and established place of business in the Southern District of Texas at its “Automation and Power Center” located at 3700 W. Sam Houston Pkwy. S., Houston, Texas 77042. The Automation and Power Center is used by the Accused ABB Entities “to showcase the solutions” ABB offers to “industry, transportation and infrastructure, and utility customers.” On information and belief, the Accused ABB Entities use the Automation and Power Center to market and display products, including the Ability System 800xA distributed control system and Select I/O system and products (further described herein). A screenshot of a video about ABB’s Houston center is attached hereto as Exhibit 8, found at <https://www.youtube.com/watch?v=FWFEsTka1Eg>. A brochure about the center is attached hereto as Exhibit 9. ABB Inc. has asserted that it maintains a physical Accused Product in this District for demonstrative purposes.

FACTS

EMERSON’S CHARMs TECHNOLOGY

29. Emerson is a global leader in bringing technology and engineering together to provide innovative automated industrial control solutions for customers around the world.

30. Emerson helps businesses automate their production, processing and distribution in, for example, the chemical, oil and gas, refining, pulp and paper, power, water and wastewater treatment, mining and metals, food and beverage, life sciences and other industries.

31. Emerson is a leading provider of automated industrial control and process control solutions. One such solution offered by Emerson is a Distributed Control System known as

DeltaV. DeltaV systems and products are designed, engineered and manufactured by FRSI, primarily at its principal place of business in Round Rock, Texas.

32. An integral part of DeltaV is Electronic Marshalling with CHARacterization Modules (CHARMs) technology. CHARMs technology and products enable Emerson to accommodate late changes in project design and deliver projects to customers on time and within budget.

33. From its first installation in 2010, Electronic Marshalling with CHARMs has now logged over ten billion hours of operation on its way to saving an estimated \$500 million at over 1000 customer sites.

34. During design and construction, Electronic Marshalling with CHARMs condenses control room space requirements, eliminates multicore cables from field to control room, and reduces commissioning hours. This proven technology enables field wiring, connected on one end to field devices such as sensors, valves, motors, drives, RFID readers and other data-gathering and receiving devices, to be landed directly on the CHARMS terminal bases connected to a bus network and ultimately an I/O Card and Controllers, regardless of signal type or control strategy. Electronic Marshalling with CHARMs technology is one of the cornerstone technologies of Emerson's Project Certainty initiative targeted at improving capital project performance.

35. Electronic Marshalling with DeltaV allows field wires to be terminated on CHARMs terminal blocks, allowing any signal type to be landed on any channel, eliminating the need for cross-wiring and marshalling panels. The CHARMs modules process the data passing from and to the field device into a proprietary communication protocol used by the I/O Card which in turn converts I/O data into a proprietary communication protocol used by controllers in

the DeltaV distributed control system. Each I/O channel is mapped to its appropriate controller electronically through the DeltaV system software.

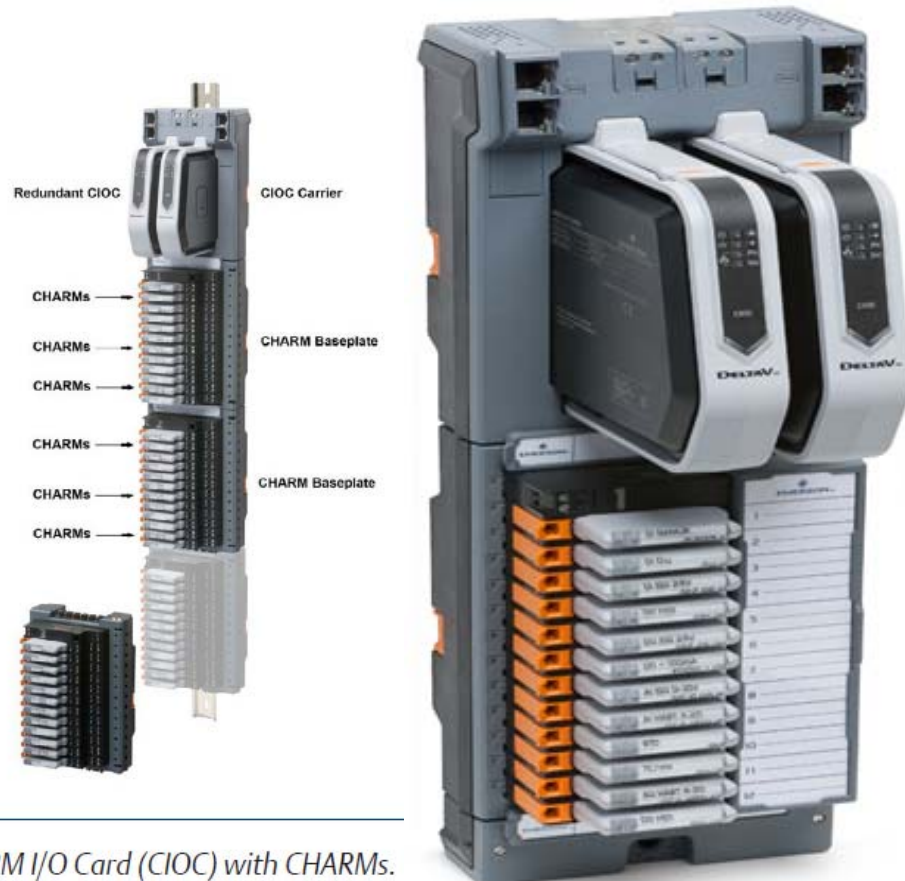
36. Electronic Marshalling with CHARMs allows hardware and software to be fully independent of each other from design to automatic loop commissioning. Electronic Marshalling replaces traditional marshalling and compresses project engineering schedules for “greenfield” (new) plants, “brownfield” (existing) migrations, and every day changes. Commissioning time is also reduced with Electronic Marshalling.

37. Emerson’s Electronic Marshalling technology, CHARMs, was developed, designed and engineered by FRSI over a period of several years at a substantial cost to Emerson.

38. Process sells and installs DeltaV systems with CHARMs in the United States.

39. Since its introduction, CHARMs has been praised by the process and industrial control industry. It is financially successful in its own right and is also a key driver of DeltaV control systems sales.

40. Two photos of typical CHARMs components are shown below:



The DeltaV CHARM I/O Card (CIOC) with CHARMs.

41. Multiple patents have issued relating to the CHARMs technology, including the Asserted Patents discussed below.

THE ASSERTED PATENTS

42. The United States Patent Office duly issued United States Patent Nos. 8,332,567 (“the ‘567 patent”), entitled “Apparatus and Methods to Communicatively Couple Field Devices to Controllers in a Process Control System” on December 11, 2012. The named inventors were Kent Allan Burr, Gary Keith Law, Doyle Eugene Broom, and Mark J. Nixon. A true and correct copy of the issued ‘567 patent is attached as Exhibit 1.

43. On December 7 and 8, 2006, the named inventors assigned all right, title and interest in U.S. Patent Application 11/533,259 filed September 19, 2006, which resulted in

issuance of the '567 patent, to FRSI.

44. The United States Patent Office duly issued United States Patent No. 9,411,769 ("the '769 patent"), entitled "Apparatus and Methods to Communicatively Couple Field Devices to Controllers in a Process Control System" on August 9, 2016. The named inventors were Klaus Erni, Gary Keith Law, Doyle Eugene Broom, Kent Allan Burr, and Mark J. Nixon. A true and correct copy of the '769 patent is attached as Exhibit 2.

45. On October 15, 2014 and December 31, 2015, the named inventors assigned all right, title and interest in U.S. Patent Application 14/592,354, filed January 8, 2015, which resulted in issuance of the '769 patent, to FRSI.

46. The United States Patent Office duly issued United States Patent No. 7,684,875 ("the '875 patent"), entitled "Methods and Apparatus to Configure Process Control System Inputs and Outputs" on March 23, 2010. The named inventors were Larry Oscar Jundt, Kent Allan Burr, Gary Keith Law, William George Irwin, Marty James Lewis, Michael George Ott and Robert Burke Havekost. A true and correct copy of the '875 patent is attached as Exhibit 3.

47. On February 2, 2007, the named inventors assigned all right, title and interest in U.S. Patent Application 11/670,835, filed February 2, 2007, which resulted in issuance of the '875 patent, to FRSI.

48. FRSI was and is the current owner of all right, title and interest in the Asserted Patents.

49. Process is the exclusive selling agent for DeltaV hardware and software products, including CHARMs technology products which practice the inventions disclosed in the Asserted Patents, manufactured by or at the direction of FRSI. Process is an exclusive licensee of FRSI in the U.S. to practice the inventions claimed in the Asserted Patents and to sell CHARMs

technology products to U.S. customers, including intercompany customers. FRSI has granted to LLLP the right to enforce the exclusionary rights it has been licensed, including the right to join FRSI in litigation instituted to enforce the Asserted Patents.

50. ABB Inc. has had notice of the ‘567 patent since around September of 2013, the ‘875 patent since around July of 2017, and the ‘769 patent at least as early as the date of filing of the Complaint, January 22, 2018. ABB Ltd had notice of the Asserted Patents at least as early as the date of filing of the Complaint, January 22, 2018. On information and belief, ABB AB and ABB Automation GmbH had constructive knowledge of the patents, by virtue of ABB Ltd’s knowledge, at least as early as the date of filing the Complaint, January 22, 2018.

51. The Accused ABB Entities and Emerson are primary competitors in the field of distributed process and industrial control systems. As competitors, Emerson’s DeltaV and CHARMs products were well-known to the Accused ABB Entities prior to filing the Complaint. In particular, on information and belief, the commercial success of CHARMs digital marshalling technology, CHARMs Electronic Marshalling hardware and software, and the patents covering CHARMs technology, were well-known to the Accused ABB Entities prior to filing the Complaint.

THE ACCUSED ABB ENTITIES’ INFRINGING “SELECT I/O” PRODUCTS

52. On information and belief, during 2016, ABB Ltd had revenue of approximately \$33.8 billion and gross profit of approximately \$9.7 billion. Its 2016 revenue attributable to its Process Automation Division was approximately \$6.6 billion. In 2017, the Process Automation Division became the Industrial Automation Division. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

53. The Accused ABB Entities' competitive Distributed Control System is known as the "Ability System 800xA." According to the 2016 SEC Form 20-F of ABB Ltd, the parent company of ABB Inc., ABB Automation GmbH, and ABB AB, the Ability System 800xA "provides a scalable extended automation system for process and production control, safety, and production monitoring."

54. On or about approximately March 14, 2017, ABB Ltd announced in Houston, Texas, at an ABB Customer World Event, held at the George R. Brown Convention Center, the introduction of "Select I/O" as a "digital marshalling" solution and component of its Ability 800xA system. As part of the announcement, ABB Ltd issued a press release dated March 14, 2017, a copy of which is attached hereto as Exhibit 4.

55. On information and belief, representatives of each of ABB Ltd, ABB Inc., ABB AB, and ABB Automation GmbH attended the tradeshow and displayed, marketed and used the Accused Products. On information and belief, representatives of at least ABB Inc., ABB AB, and ABB Automation GmbH caused components of the Accused Products to be exported from outside the U.S. and imported into the U.S., where the components were assembled into Accused Products for demonstration purposes and subsequently displayed at the tradeshow where there were marketed and used. The keynote speech at the event was made by ABB Ltd's then CEO, Ulrich Speisshofer, on or about March 14, 2017. In his keynote speech, Mr. Speisshofer described the state of the digitalization of process control as the "Fourth Industrial Revolution" and highlighted ABB's Ability Process Control System. He also claimed that "ABB is transforming, and is now globally number one or number two in its four areas: number one in process control, motion control . . ." He further stated that "[o]ver the past seven years, ABB has invested \$10 billion in R&D, organic growth and acquisitions in the U.S. 'We now employ

20,000 people and operate manufacturing sites in the U.S.” He further stated that “ABB has been a ‘hidden’ digital champion, connecting 70 million smart devices in 70,000 control systems, but not known for it . . . Now we’re adding an overarching digital architecture to combine them with human expertise: ABB Ability.” A screenshot of the video presentation is attached hereto as Exhibit 10, found at https://www.youtube.com/watch?v=WKIM3lcRA_k. An article describing the Accused ABB Entities’ presentations at the show is attached as Exhibit 11. A description of the announcement of the Accused Products begins at page 5 of Exhibit 11.

56. On information and belief, the Accused Products were used by [REDACTED], and by its authorized agents, during the Customer World Event on or about March 14, 2017. On information and belief, ABB Ltd controlled such uses at the Customer World Event such that any use was attributable to ABB Ltd. On information and belief, ABB Ltd controlled such use at least by dictating the time of the performance, on or around March 14, 2017. Additionally, the use of the Accused Products was and is attributable to all the Accused ABB Entities because they comprise a joint enterprise.

57. This district is a prominent market for the Accused Products, because ABB Inc. maintains a showroom-type facility in this district to market products for this market and many of its U.S. customers for the Accused Products are located in this district, ABB Inc. admits to keeping physical Accused Products in this district for use and demonstration purposes. Emerson, on information and belief and subject to discovery, has reason to believe, based at least on the facts alleged herein, that it is more likely than not that the Accused ABB Entities have used the Accused Products in the U.S., made the Accused Products in the U.S., imported the Accused Products into the U.S., made offers for sale of the Accused Products in the U.S., and sold the Accused Products in the U.S. since at least the date of the public marketing launch of the

Accused Products at ABB's Customer World Event trade show in Houston, Texas in March of 2017.

58. Select I/O is part of the Accused ABB Entities' Ability System 800xA Process Control System architecture and the system was featured and released and launched to the public and its customers for sale in a presentation at a tradeshow in March, 2017 by at least Dan Overly, ABB's Global Head of Products and Business Development for Oil, Gas and Chemical Business Unit. A summary of Mr. Overly's presentation at the tradeshow begins on page 5 of Exhibit 11. On information and belief, Mr. Overly resides in the United States and marketing and selling the Accused Products are among his duties. On information and belief, the Accused Products were at least marketed, used, and demonstrated, at the Accused ABB Entities Customer World tradeshow event. Below is a photograph of a portion of the Accused Products shown at the Customer World Event, which depicts at least several Signal Conditioning Modules ("SCMs"), which even appear physically similar to Emerson's CHARMs modules:



59. Examination of the physical structure and architecture of the Accused Products,

shown at the tradeshow event, together with the Accused ABB Entities' product descriptions, depictions and claims make it more likely than not that the Accused Products mimic Emerson's CHARMs products, which practice the inventions disclosed in the Asserted Patents, in terms of at least structure, architecture, and functionality. Further similarities will likely be established after a reasonable opportunity for further investigation and discovery.

60. Emerson served a request to inspect the Accused Products on July 20, 2018. After much delay by ABB Inc., Emerson finally inspected what ABB Inc.'s legal representatives purported to be the Accused Products in Indianapolis, Indiana on April 30, 2019. [REDACTED]

[REDACTED]. In fact, the similarities are so great that they could not have occurred randomly.

61. In another video posted to the Accused ABB Entities' YouTube channel and further posted on ABB's website on or about June 4, 2017, Robert Norberg, "Global Product Manager, ABB", gave a presentation introducing the Ability System 800xA Select I/O technology, including a description of how it works and its functionality with examples of component parts of the Accused Products shown behind him. A screenshot of the video is attached hereto as Exhibit 12, found at https://www.youtube.com/watch?v=madRCgnq_ss.

62. On information and belief, subject to discovery, since at least the time of the Accused ABB Entities' Customer World Event in Houston in March, 2017, the Accused Products were conceived, and presently are being, designed, engineered, developed and manufactured by the Accused ABB Entities inside and outside the United States as part of a joint enterprise, imported into the United States by ABB Inc., offered for sale in the United States and the Southern District of Texas by ABB Inc., ABB Automation GmbH, and ABB Ltd, used in the

United States by ABB Inc. and ABB AB, and sold in the United States and the Southern District of Texas by ABB Inc. and ABB Ltd directly or indirectly. The Accused ABB Entities comprise a large, global joint enterprise of at least the named Defendants and it is in the business of selling, and making a profit on the sale of, its products and services, including the Accused Products. The Accused ABB Entities exists to sell, among others, the Accused Products.

63. Attached as Exhibit 5-7 are true and correct copies of marketing materials released by the Accused ABB Entities in connection with or subsequent to the Customer World Event. These materials contain specific information about and depictions of the physical and technical features of the Accused Products. Based not only on these materials, but also the results of discovery and inspection to date, it is more likely than not that the Accused Products infringe the Asserted Patents, as discussed *infra*, due to the physical structure, the architecture and the claimed functionality of the Accused Products. Further evidence of infringement will be established after a reasonable opportunity for further investigation or discovery, particularly documents and information held by the Accused ABB Entities relating to the conception, engineering, design and development of the Accused Products.

64. According to the Accused ABB Entities' marketing materials: "Select I/O is an Ethernet based single channel I/O solution for ABB Ability™ System 800xA that offers full redundancy down to the Signal Conditioning Module. Each signal coming from the field is conditioned individually with the Signal Conditioning Module (SCM) for both process and safety applications." The SCMs plugged into the base shown above (the connecting device between the module and the base is not visible in the view in the above photograph) indicate that SCMs communicate using a plurality of communication protocols, digital and analog, input and output. An example of an individual SCM is depicted here:



65. SCMs, based on the photo above and the Accused ABB Entities' marketing materials, are offered in a variety of formats and protocols, as are CHARMs. During the inspection on April 30, 2019, [REDACTED]

[REDACTED]

66. On information and belief, the Accused ABB Entities represent to the public that features of the Accused ABB Entities' Select I/O System include:

- Hardware selectable I/O types
- Field disconnect mode (connected to system, but isolated from the field)
- Electronic current limitation and galvanically isolated (per channel)
- Line monitoring for all I/O types
- -40 to + 70 deg C temp. range
- Up to 192 SCM's per I/O cluster
- SIL3 certified safety modules (DI, DO, 3A DO, AI, AO)
- Single channel and multi-channel (S800) I/O in the same system
- Support for digital marshalling

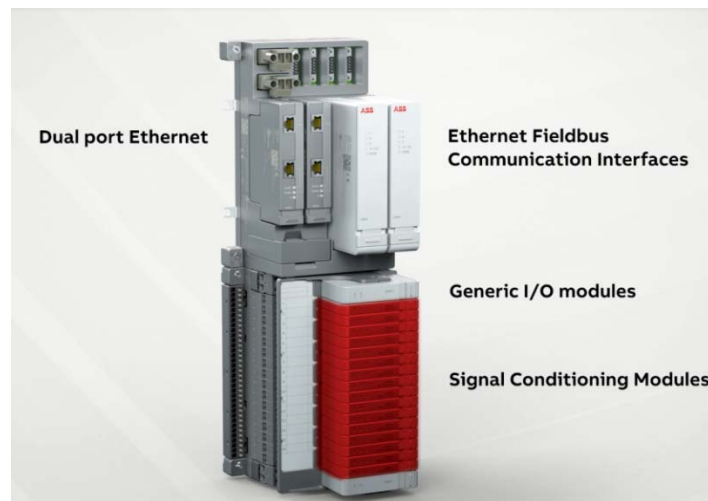
67. On information and belief, after a reasonable opportunity for further investigation or discovery, the Accused ABB Entities market and offer for sale the Accused Products throughout the United States and the world, including via its website at

http://new.abb.com/control_systems/system-800xa/800xa-dcs/hardware-controllers-io/select-i-o

and <http://new.abb.com/control-systems/system-800xa/the-future-of-project-execution/system-800xa-s-select-i-o-fundamentally-changes-automation-project-execution>.

68. Attached as Exhibits 6 and 7 are true and correct copies of the Accused ABB Entities' marketing and product feature materials on its website, describing and depicting the Accused Products.

69. On information and belief, after a reasonable opportunity for further investigation or discovery, and an excerpt from a promotional video for the Accused ABB Entities' Select I/O System, Select I/O SCMs (in red) are installed in connection with an I/O card configuration similar to Emerson's CHARMs technology:



70. On information and belief, after a reasonable opportunity for further investigation or discovery and as depicted here, the Accused ABB Entities' Select I/O System is designed to be installed in a typical termination cabinet used in distributed control systems, with field device wiring coming into physical terminals electrically connected to the Select I/O SCMs:



71. On information and belief, the Accused ABB Entities' Select I/O System uses bases into which SCMs are inserted to connect the modules to the bases and a bus network and to the field device interface. The bases can be connected to an I/O Card base or together with each other in a "daisy chain" structure. In either configuration, to marshal field device data to SCMs, I/O Cards and ultimately distributed control system controllers, the bases must utilize a bus, or otherwise connect to a bus, which bus connects the base to the distributed control system network.

72. On information and belief, after a reasonable opportunity for further investigation or discovery, depicted below is a photo of an empty Select I/O base, the physical terminals of which connect field device wiring to SCMs. The SCMs are inserted into the base to process field device data into a communication protocol used to communicate with an I/O Card.

73. On information and belief, after a reasonable opportunity for further investigation or discovery, visible at the top of the empty Select I/O base is a means of connecting the base to other bases or an I/O Card base and connecting the base to the bus network of the distributed control system.



74. On information and belief, after a reasonable opportunity for further investigation or discovery, the Accused ABB Entities' Select I/O System includes use of "xStream Engineering" software which enables automatic digital marshalling of field devices to SCMs in termination cabinets. According to the Accused ABB Entities' Select I/O promotional materials, xStream Engineering has the following features and functionality:

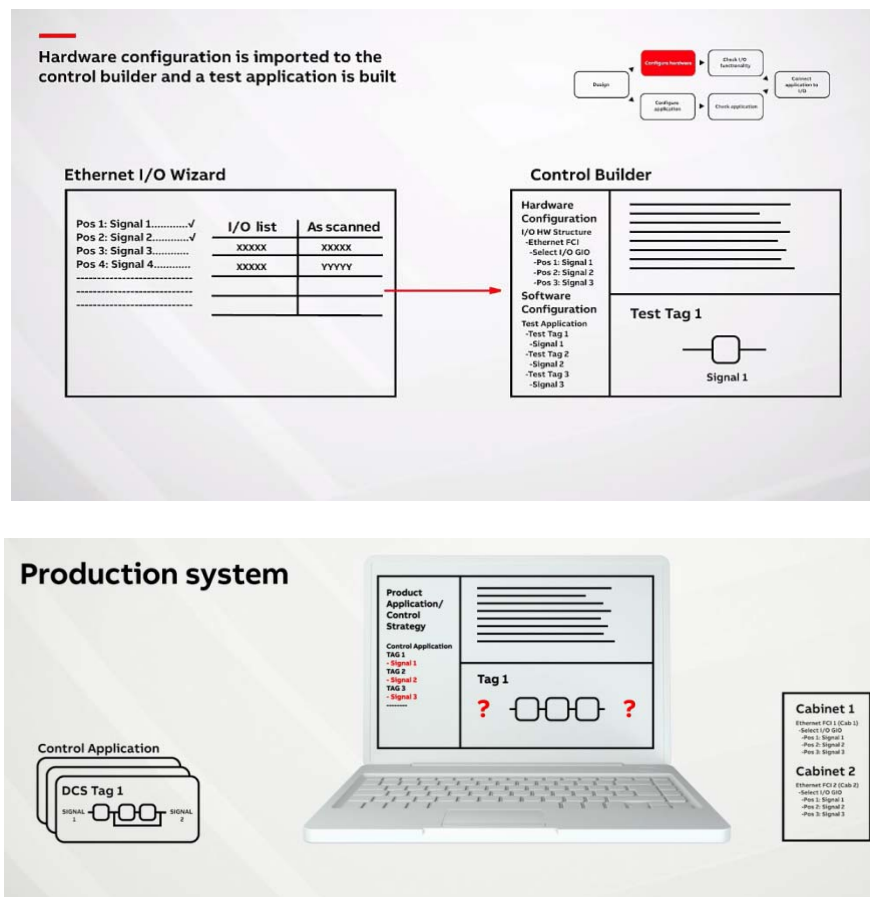
xStream Engineering

- Automatic scanning of Select I/O or S800 I/O connected to Ethernet FCI's (HART devices)
- Automatic configuration of I/O hardware structure in ABB Ability™ System 800xA's Control Builder
- Automatic configuration of the test application for early loop functionality testing
- Automatic digital marshalling of I/O to the control application (using signal names)
- Ability to use I/O list within the engineering environment.

75. On information and belief, after a reasonable opportunity for investigation or discovery, HART is a standard communication protocol. With certain field devices,

communications between field devices and I/O Cards can use either an analog 4-20mA communication protocol or an enhanced digital HART communication protocol.

76. On information and belief, after a reasonable opportunity for further investigation or discovery, the Accused ABB Entities' xStream Engineering software uses "tags" to marshal I/O field devices to Select I/O SCMs, I/O Cards and ultimately distributed control system controllers. Such use of tags is demonstrated in these excerpts from an Accused ABB Entities promotional video:



77. On information and belief, after a reasonable opportunity for further investigation or discovery, the Accused Products are designed and made for infringing use, and have no other substantial non-infringing use.

78. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

79.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

80.

[REDACTED]

[REDACTED]

[REDACTED]

COMMUNICATIONS BETWEEN THE PARTIES CONCERNING
THE ACCUSED PRODUCTS

81. Following the March, 2017 introduction of the Accused Products at the Accused ABB Entities' Customer World Event tradeshow, on or about April 3, 2017, Emerson contacted J. Bruce Schelkopf, a representative of both ABB Ltd and ABB Inc. and advised him of Emerson's belief that the Accused Products infringed several Emerson patents, included several

of the Asserted Patents. Mr. Schelkopf's business card identified him as the Group Sr. Vice President, General Counsel & Chief Intellectual Property Officer, Global Group Function – Intellectual Property and as an employee of both ABB Ltd and ABB Inc. One side of his business card listed his ABB Ltd contact information and the other side his ABB Inc. contact information. A meeting of the Parties occurred on or about July 18, 2017 and Emerson presented the basis for its belief that the Accused ABB Entities' Accused Products infringed several of the Asserted Patents. Representatives of ABB Ltd and ABB Inc, including Bruce Schelkopf and Melissa Bitting, appeared at this meeting. They agreed to respond to Emerson with any basis for believing the Accused Products did not infringe the asserted patents. After numerous months of delay, they had not responded to Emerson's presentation and efforts pre-suit.

82. After the July 2017 meeting, information concerning the Accused Products became harder to locate on the Accused ABB Entities' website and despite its best efforts Emerson could not locate a sample of the Accused Products to inspect. However, the Accused ABB Entities have never advised Emerson that it did not intend to market and sell the Accused Products and, in fact, it affirmed that it intended to market and sell the Accused Products.

83. On information and belief, the relationship between the Accused ABB Entities is that of a common joint enterprise, at least as it relates to the Accused Products. On information and belief, the Accused ABB Entities, including all named Defendants, share facilities, cooperate in the promotion and sale of the Accused Products, have some overlapping employees or comingle employees on joint projects related to the Accused Products and are jointly and severally liable for the willful infringement of the Asserted Patents [REDACTED]

[REDACTED]

[REDACTED]

84. On information and belief, there is an implied agreement among the Accused ABB Entities to conceive, research and develop, manufacture, market, launch, sell, offer for sale, demonstrate and use the Accused Products to their mutual financial benefit.

85. On information and belief, [REDACTED]

[REDACTED]

[REDACTED] On information and belief, ABB Ltd [REDACTED]

[REDACTED]

[REDACTED]

86. The Accused ABB Entities share a common purpose in developing, manufacturing, marketing, launching, selling, offering for sale, and using of the Accused Products globally and within the United States. The common purpose includes competing directly with Emerson's CHARMs in the automated industrial control and process control solutions industry.

87. The Accused ABB Entities share a common monetary interest in copying Emerson's CHARMs and selling the Accused Products globally and in the United States. The common monetary interest includes jointly marketing, launching, developing, and manufacturing the Accused Products to sell to customers. On information and belief, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

88. On information and belief, the Accused Products were developed, manufactured, marketed, launched, sold, offered for sale, and used by the Accused ABB Entities' employees in multiple different entities and countries with individual employees and agents all sharing a role in and information about the Accused Products.

89. On information and belief, the Accused ABB Entities' employees [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

90. [REDACTED]

[REDACTED]

[REDACTED] On information and belief, ABB Ltd controlled ABB AB, ABB Inc., and ABB Automation GmbH by and through its authorized agents at least with respect to the Accused Products.

91. On information and belief, a Select I/O with xStream Engineering demonstration kit contains all of the same features and parts as the Accused Products. The Accused ABB Entities' demonstration kits are [REDACTED]

[REDACTED]

[REDACTED]

92. On April 30, 2019, ABB Inc. represented to Emerson that the demonstration kits are representative samples of the Accused Products.

Facts Relating to Manufacture, Making, And Importing of Accused Products

93. On information and belief, the Accused ABB Entities' conceived, developed, researched, engineered and manufactured the Accused Products as part of a joint enterprise. [REDACTED]

[REDACTED]

[REDACTED] Further, at the time the Accused Products were conceived, developed, researched, engineered and manufactured, at least ABB Inc. had actual knowledge of one or more of the Asserted Patents.

94. On information and belief, ABB Automation GmbH [REDACTED]

[REDACTED] On information and belief, the Accused ABB Entities', [REDACTED]

[REDACTED] as part of a joint enterprise.

95. On information and belief, [REDACTED]

[REDACTED]

knowledge it would be used in an infringing manner within the United States.

96. On information and belief, [REDACTED]

[REDACTED]

[REDACTED] The SCMs constitute a material part of the Accused Products and are not suitable for another or non-infringing use.

97. On information and belief, [REDACTED]

[REDACTED],

the Accused Products.

98. On information and belief, ABB AB knew the Accused Products were going to be used in an infringing manner in the United States. In or about [REDACTED]

[REDACTED]

[REDACTED], intended said components to be used within the United States. On information and belief, [REDACTED]

[REDACTED]

[REDACTED]

99. On information and belief, Robert Norberg is an employee and authorized agent of ABB AB. Robert Norberg's title is the Global Product Manager of I/O.

100. On or around [REDACTED]

[REDACTED]

101. [REDACTED]

[REDACTED]

[REDACTED]

102. [REDACTED]

[REDACTED]

103. [REDACTED]

[REDACTED] On information and belief, Andre Eckfeldt is an employee of ABB Automation GmbH [REDACTED]

[REDACTED] On information and belief, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Facts Relating to Offers of Sale and Sales of Accused Products

104. On or around [REDACTED]

[REDACTED]

105. [REDACTED]

[REDACTED]

[REDACTED]

106. On information and belief, Alicia Dubay is an authorized agent and employee of ABB Inc. and Strategic Marketing Manager for Product Group Products within the ABB worldwide organization. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

107. On information and belief, Alicia Dubay [REDACTED]

[REDACTED] The [REDACTED]

[REDACTED] The [REDACTED]

[REDACTED]

[REDACTED] Public source information indicates that NextDecade is expected to supply Shell with liquefied natural gas (LNG) for the next 20 years. The [REDACTED]

[REDACTED]

108. The [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] These are the same benefits claimed by Emerson's CHARMs technology.

109. On or around March 7, 2018, weeks after Emerson filed its initial Complaint in this case on January 22, 2018, NextDecade and ABB Ltd simultaneously released identical public press releases similar to [REDACTED]

[REDACTED]. The public press release describes how NextDecade "has chosen ABB Ltd (ABB (SIX Swiss Ex: ABBN))" for its Rio Grande LNG project in South Texas. On information and belief, Greg Scheu, ABB President Americas Region, and Member of the Group Executive Committee of ABB Ltd, Switzerland, was pictured in the final public press release images announcing ABB Ltd as the project winner.

110. On information and belief, the Accused ABB Entities' offered for sale and sold the Accused Products to NextDecade on or before at least March 7, 2018 as part of a joint enterprise. On information and belief, ABB Ltd or in the alternative ABB Inc., offered for sale

and sold the Accused Products to NextDecade on or before at least March 7, 2018.

111. On information and belief, subject to discovery, the Accused ABB Entities [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

112. [REDACTED]

[REDACTED]

113. [REDACTED]

[REDACTED].

114. On information and belief, the original Engineering, Procurement, and Construction (“EPC”) company for NextDecade’s Rio Grande LNG project was CB&I. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

115. [REDACTED]

[REDACTED]

[REDACTED].

116. On information and belief, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED].

117. On information and belief, [REDACTED]

[REDACTED]

[REDACTED]

118. The Accused ABB Entities [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Facts Relating to Use of the Accused Products

119. On information and belief, Hans Nordstrom is an employee and authorized agent of ABB AB. [REDACTED].

120. On or about [REDACTED]

[REDACTED]

[REDACTED]

121. On or around the same day, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Robert Norberg [REDACTED]

[REDACTED].

122. On information and belief, [REDACTED]

[REDACTED]

[REDACTED]

123. On information and belief, ABB also had a 2019 ABB Customer World Event in Houston, Texas, on or around March 4, 2019.

124. On information and belief, [REDACTED]

[REDACTED]

125. On information and belief, [REDACTED]

[REDACTED]

[REDACTED] On information and belief, Hans Nordstrom was acting in his official capacity as an agent of ABB AB and ABB Ltd.

126. On information and belief, [REDACTED]

[REDACTED]. On information

and belief, [REDACTED]

[REDACTED]

127. On information and belief, ABB Ltd controlled and authorized the ABB Customer World Events in both 2017 and 2019. On information, ABB Ltd authorized its agents and

subsidiaries to market, offer for sale, demonstrate, and use the Accused Products during both Customer World events.

128. The Accused ABB Entities caused the market launch, display, use, and demonstration of the Accused Products during the 2017 and 2019 ABB Customer World events as part of a joint enterprise.

129. The acts of each individual Defendant, by virtue of the joint enterprise, are attributable to each and every other named Defendant.

COUNT I
ABB Inc. Infringement of the '567 Patent

130. Emerson incorporates by reference the foregoing paragraphs 1-129 of the Complaint as though fully set forth herein.

131. ABB Inc. has infringed, directly or indirectly, and continues to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products at least as part of the joint enterprise with ABB AB, ABB Ltd, and ABB Automation GmbH.

132. ABB Inc. has also infringed individually, directly or indirectly, and continues to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products.

133. Claim 1 of the '567 patent states:

1. An apparatus to communicatively couple field devices to a controller in a process control system, the apparatus comprising:

a base comprising:

a first physical interface to be communicatively coupled to different types of field

devices and exchange communications with one or more of the field devices via a plurality of different communication protocols; and

a second physical interface to communicatively couple the base to a bus to communicate with the controller; and

a module removably attachable to the base and to communicate with the controller via the second physical interface of the base, the module comprising:

a connector to communicatively couple the module to the base; and

a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols.

134. On information and belief, which will likely be further established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '567 patent at least as follows:

- a. Select I/O products are apparatuses for communicatively coupling field devices to a controller in process control system;
- b. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to the devices to exchange communications using a plurality of communication

protocols;

c. Select I/O bases have a second physical interface which communicatively couples the base to a bus to communicate with a controller;

d. Select I/O products use SCM modules removably attachable to the base and to communicate with the controller via the second physical interface of the base;

e. Select I/O SCM modules have a connector to communicatively couple the module to the base, because to achieve ABB's claimed functionality its SCM modules must connect communicatively to its Select I/O bases similar or identical to CHARMs bases;

f. Select I/O SCM modules have a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols, because on information and belief SCM modules process field device data into the I/O Card communication protocol; and

g. On information and belief, the precise manner in which Select I/O products infringe this claim of the '567 patent will be shown by discovery, source code review, and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

135. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Inc. was on notice, at least as early as September 2013, of the '567 Patent and knew or should have known that the Accused Products infringe the '567 Patent. Acting with such knowledge, ABB Inc. intentionally instructs and

encourages other ABB entities, [REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

136. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Inc. contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Inc., knowing of the '567 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] to enable them to infringe the '567 Patent.

137. ABB Inc.'s acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Inc. damages sustained as a result of ABB Inc.'s infringement of the '567 patent.

138. ABB Inc.'s acts of infringement of the '567 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Inc.'s infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT II
ABB Inc.'s Infringement of the '769 Patent

139. Emerson incorporates by reference the foregoing paragraphs 1-138 of the Complaint as though fully set forth herein.

140. ABB Inc. has infringed, directly or indirectly, and continues to infringe, at least

claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB Ltd, ABB AB, and ABB Automation GmbH.

141. ABB Inc. has also infringed individually, directly or indirectly, and continues to infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products.

142. Claim 1 of the '769 patent states:

1. An apparatus, comprising:

a base comprising:

a first physical interface to be communicatively coupled to one of a first field device in a process control system or a second field device in the process control system; and

a second physical interface to be communicatively coupled to a controller in the process control system via a bus; and

a module to be removably attached to the base, the module to communicate with the first field device using a first communication protocol when the first physical interface is communicatively coupled to the first field device, the module to communicate with the second field device using a second communication protocol different than the first communication protocol when the first physical interface is communicatively coupled to the second field device, the module to communicate with the controller via the bus using a third communication protocol, the third communication protocol different from the first and second communication protocols.

143. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '769 patent at least as follows:

- a. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to a first and second field device in an Ability 800xA process control system;
- b. Select I/O products have a second physical interface to be communicatively coupled, by a bus, to a controller in an Ability 800xA process control system;
- c. Select I/O products include SCM modules removably attached to the base to communicate with a first field device using a first communication protocol, such as 4-20mA, when the first physical interface is communicatively coupled to a first field device and to communicate with a second field device using a second communication protocol, such as digital HART, a different communication protocol from 4-20mA, when the first physical interface is communicatively coupled to a second field device;
- d. Select I/O SCM modules communicate with the controller via the bus using a third communication protocol, such as a proprietary I/O Card protocol which is different from both 4-20mA and enhanced digital HART; and
- e. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, the precise manner in which

Select I/O products infringe this claim of the '769 patent will be shown by discovery, source code review, and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

144. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Inc. was on notice, at least as early as January 2018, of the '769 Patent and knew or should have known that the Accused Products infringe the '769 Patent. Acting with such knowledge, ABB Inc. intentionally instructs and encourages other ABB entities, [REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

145. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Inc. contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Inc., knowing of the '769 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] to enable them to infringe the '769 Patent.

146. ABB Inc.'s acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Inc. damages sustained as a result of ABB Inc.'s infringement of the '769 patent.

147. ABB Inc.'s acts of infringement of the '769 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV

distributed control systems. Hence, ABB Inc.'s infringement has and will continue to result in lost sales of not only CHARMs technology products and services, but also DeltaV distributed control system products and services.

COUNT III
ABB Inc.'s Infringement of the '875 Patent

148. Emerson incorporates by reference the foregoing paragraphs 1-147 of the Compliant as though fully set forth herein.

149. ABB Inc. has infringed, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB AB, ABB Ltd, and ABB Automation GmbH.

150. ABB Inc. has also infringed individually, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products.

151. Claim 8 of the '875 patent states:

8. A method comprising:

communicatively coupling a process control device to a channel of a multi-channel

input/output port of a process controller via an input/output device;

obtaining a tag for the process control device from the input/output device, wherein

obtaining the tag for the process control device from the input/output device

comprises directing an input/output gateway to sense whether the input/output

device is present, the input/output gateway to read the tag from the input/output

device when the input/output device is present;

querying based on the tag obtained from the input/output device a database of process control routines implemented by the process controller to identify a process control routine, the process control routine to control the process control device within a process plant; and

communicatively coupling the identified process control routine to the channel of the multi-channel input/output port based on the database query.

152. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 8 of the '875 patent at least as follows:

- a. Select I/O products communicatively couples a process control device, such as a field device, to a channel of a multi-channel input/output port of a process controller via an input/output device;
- b. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software automatically and digitally marshal input/output devices to the I/O Card and controller of a process control system;
- c. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by obtaining a tag for a process control device from the input/output device by sensing its presence and reading its identification tag;
- d. On information and belief, Select I/O products used in conjunction with

the Accused ABB Entities' xStream Engineering software use a gateway to sense the presence of an input/output device and read its identification tag;

e. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by querying, based on the input/output device's tag, a database of process control routines implemented by the controller to control the input/output device;

f. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by communicatively coupling the identified process control routine to the channel of the multi-channel input/output port based on the database inquiry; and

g. On information and belief, the precise manner in which Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software infringe this claim of the '875 patent will be shown by discovery, source code review and examination and evaluation of a sample of Select I/O products and ABB's xStream Engineering software, including, but not limited to, firmware and software.

153. On information and belief, subject to discovery, ABB Inc. was on notice, at least as early as July of 2017, of the '875 Patent and knew or should have known that the Accused Products infringe the '875 Patent. Acting with such knowledge, ABB Inc. intentionally instructs and encourages ABB entities, [REDACTED], [REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

154. On information and belief, ABB Inc. contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are

material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Inc., knowing of the '875 Patent and with specific intent to cause others to directly infringe it, offers to sell the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] [REDACTED] to enable them to infringe the '875 Patent.

155. ABB Inc.'s acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Inc. damages sustained as a result of ABB Inc.'s infringement of the '875 patent.

156. ABB Inc.'s acts of infringement of the '875 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Inc.'s infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT IV
ABB Ltd's Infringement of the '567 Patent

157. Emerson incorporates by reference the foregoing paragraphs 1-156 of the Complaint as though fully set forth herein.

158. ABB Ltd has infringed, directly or indirectly, and continue to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products at least as part of the joint enterprise with ABB AB, ABB Inc., and ABB Automation GmbH.

159. ABB Ltd has also infringed individually, directly or indirectly, and continue to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by selling and offering to sell the Accused Products, and by controlling

ABB AB's, ABB Inc.'s, and ABB Automation GmbH's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

160. Claim 1 of the '567 patent states:

1. An apparatus to communicatively couple field devices to a controller in a process control system, the apparatus comprising:

a base comprising:

a first physical interface to be communicatively coupled to different types of field devices and exchange communications with one or more of the field devices via a plurality of different communication protocols; and

a second physical interface to communicatively couple the base to a bus to communicate with the controller; and

a module removably attachable to the base and to communicate with the controller via the second physical interface of the base, the module comprising:

a connector to communicatively couple the module to the base; and

a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols.

161. On information and belief, which will likely be further established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and

marketing materials and claims, the Accused Products infringe at least claim 1 of the '567 patent at least as follows:

- a. Select I/O products are apparatuses for communicatively coupling field devices to a controller in process control system;
- b. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to the devices to exchange communications using a plurality of communication protocols;
- c. Select I/O bases have a second physical interface which communicatively couples the base to a bus to communicate with a controller;
- d. Select I/O products use SCM modules removably attachable to the base and to communicate with the controller via the second physical interface of the base;
- e. Select I/O SCM modules have a connector to communicatively couple the module to the base, because to achieve ABB's claimed functionality its SCM modules must connect communicatively to its Select I/O bases similar or identical to CHARMs bases;
- f. Select I/O SCM modules have a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols, because on information and belief SCM modules process field device data into the I/O Card communication protocol; and
- g. On information and belief, the precise manner in which Select I/O

products infringe this claim of the '567 patent will be shown by discovery, source code review, and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

162. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Ltd was on notice, at least as early as January 22, 2018, of the '567 Patent and knew or should have known that the Accused Products infringe the '567 Patent. Acting with such knowledge, ABB Ltd intentionally instructs and encourages other ABB entities, [REDACTED], [REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

163. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Ltd contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Ltd, knowing of the '567 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] [REDACTED] to enable them to infringe the '567 Patent.

164. ABB Ltd's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Ltd damages sustained as a result of ABB Ltd's infringement of the '567 patent.

165. ABB Ltd's acts of infringement of the '567 patent have caused, and will continue

to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Ltd's infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT V
ABB Ltd's Infringement of the '769 Patent

166. Emerson incorporates by reference the foregoing paragraphs 1-165 of the Complaint as though fully set forth herein.

167. ABB Ltd has infringed, directly or indirectly, and continues to infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB Inc., ABB AB, and ABB Automation GmbH.

168. ABB Ltd has also infringed individually, directly or indirectly, and continues to infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by selling and offering to sell the Accused Products, and by controlling ABB AB's, ABB Inc.'s, and ABB Automation GmbH's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

169. Claim 1 of the '769 patent states:

1. An apparatus, comprising:

a base comprising:

a first physical interface to be communicatively coupled to one of a first field device in a process control system or a second field device in the process control system; and

a second physical interface to be communicatively coupled to a controller in the

process control system via a bus; and
a module to be removably attached to the base, the module to communicate with the first field device using a first communication protocol when the first physical interface is communicatively coupled to the first field device, the module to communicate with the second field device using a second communication protocol different than the first communication protocol when the first physical interface is communicatively coupled to the second field device, the module to communicate with the controller via the bus using a third communication protocol, the third communication protocol different from the first and second communication protocols.

170. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '769 patent at least as follows:

- a. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to a first and second field device in an Ability 800xA process control system;
- b. Select I/O products have a second physical interface to be communicatively coupled, by a bus, to a controller in an Ability 800xA process control system;
- c. Select I/O products include SCM modules removably attached to the base to communicate with a first field device using a first communication protocol, such as 4-

20mA, when the first physical interface is communicatively coupled to a first field device and to communicate with a second field device using a second communication protocol, such as digital HART, a different communication protocol from 4-20mA, when the first physical interface is communicatively coupled to a second field device;

d. Select I/O SCM modules communicate with the controller via the bus using a third communication protocol, such as a proprietary I/O Card protocol which is different from both 4-20mA and enhanced digital HART; and

e. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, the precise manner in which Select I/O products infringe this claim of the '769 patent will be shown by discovery, source code review and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

171. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Ltd was on notice, at least as early as January 22, 2018, of the '769 Patent and knew or should have known that the Accused Products infringe the '769 Patent. Acting with such knowledge, ABB Ltd intentionally instructs, encourages, and or controls other ABB entities, [REDACTED]

[REDACTED] and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

172. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Ltd contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof

are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Ltd, knowing of the '769 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] [REDACTED] to enable them to infringe the '769 Patent.

173. ABB Ltd's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Ltd damages sustained as a result of ABB Ltd's infringement of the '769 patent.

174. ABB Ltd's acts of infringement of the '769 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Ltd's infringement has and will continue to result in lost sales of not only CHARMs technology products and services, but also DeltaV distributed control system products and services.

COUNT VI
ABB Ltd's Infringement of the '875 Patent

175. Emerson incorporates by reference the foregoing paragraphs 1-174 of the Compliant as though fully set forth herein.

176. ABB Ltd has infringed, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB AB, ABB Inc., and ABB Automation GmbH.

177. ABB Ltd has also infringed individually, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by selling and offering to sell the Accused Products, and by controlling

ABB AB's, ABB Inc.'s, and ABB Automation GmbH's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

178. Claim 8 of the '875 patent states:

8. A method comprising:

communicatively coupling a process control device to a channel of a multi-channel

input/output port of a process controller via an input/output device;

obtaining a tag for the process control device from the input/output device, wherein

obtaining the tag for the process control device from the input/output device

comprises directing an input/output gateway to sense whether the input/output

device is present, the input/output gateway to read the tag from the input/output

device when the input/output device is present;

querying based on the tag obtained from the input/output device a database of process

control routines implemented by the process controller to identify a process

control routine, the process control routine to control the process control device

within a process plant; and

communicatively coupling the identified process control routine to the channel of the

multi-channel input/output port based on the database query.

179. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 8 of the '875 patent at least as follows:

- a. Select I/O products communicatively couples a process control device, such as a field device, to a channel of a multi-channel input/output port of a process controller via an input/output device;
- b. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software automatically and digitally marshal input/output devices to the I/O Card and controller of a process control system;
- c. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by obtaining a tag for a process control device from the input/output device by sensing its presence and reading its identification tag;
- d. On information and belief, Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software use a gateway to sense the presence of an input/output device and read its identification tag;
- e. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by querying, based on the input/output device's tag, a database of process control routines implemented by the controller to control the input/output device;
- f. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by communicatively coupling the identified process control routine to the channel of the multi-channel input/output port based on the database inquiry; and
- g. On information and belief, the precise manner in which Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering

software infringe this claim of the '875 patent will be shown by discovery, source code review and examination and evaluation of a sample of Select I/O products and ABB's xStream Engineering software, including, but not limited to, firmware and software.

180. On information and belief, subject to discovery, ABB Ltd was on notice, at least as early as January 22, 2018, of the '875 Patent and knew or should have known that the Accused Products infringe the '875 Patent. Acting with such knowledge, ABB Ltd intentionally instructs and encourages other ABB entities, [REDACTED]

[REDACTED] and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

181. On information and belief, ABB Ltd contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Ltd, knowing of the '875 Patent and with specific intent to cause others to directly infringe it, offers to sell the Accused Products through its subsidiaries and/or to authorized resellers and/or to ABB Ltd's [REDACTED] [REDACTED] to enable them to infringe the '875 Patent.

182. ABB Ltd's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Ltd damages sustained as a result of ABB Ltd's infringement of the '875 patent.

183. ABB Ltd's acts of infringement of the '875 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Ltd's infringement has and will continue to result in

lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT VII
ABB AB's Infringement of the '567 Patent

184. Emerson incorporates by reference the foregoing paragraphs 1-183 of the Complaint as though fully set forth herein.

185. ABB AB has infringed, directly or indirectly, and continue to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products at least as part of the joint enterprise with ABB Ltd, ABB Inc., and ABB Automation GmbH.

186. ABB AB has also infringed individually, directly or indirectly, and continues to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by using the Accused Products, and by inducing and contributing to ABB Inc.'s and ABB Automation GmbH's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

187. Claim 1 of the '567 patent states:

1. An apparatus to communicatively couple field devices to a controller in a process control system, the apparatus comprising:

a base comprising:

a first physical interface to be communicatively coupled to different types of field devices and exchange communications with one or more of the field devices via a plurality of different communication protocols; and
a second physical interface to communicatively couple the base to a bus to communicate with the controller; and

a module removably attachable to the base and to communicate with the controller via the second physical interface of the base, the module comprising:

- a connector to communicatively couple the module to the base; and
- a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols.

188. On information and belief, which will likely be further established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '567 patent at least as follows:

- a. Select I/O products are apparatuses for communicatively coupling field devices to a controller in process control system;
- b. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to the devices to exchange communications using a plurality of communication protocols;
- c. Select I/O bases have a second physical interface which communicatively couples the base to a bus to communicate with a controller;
- d. Select I/O products use SCM modules removably attachable to the base

and to communicate with the controller via the second physical interface of the base;

e. Select I/O SCM modules have a connector to communicatively couple the module to the base, because to achieve ABB's claimed functionality its SCM modules must connect communicatively to its Select I/O bases similar or identical to CHARMs bases;

f. Select I/O SCM modules have a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols, because on information and belief SCM modules process field device data into the I/O Card communication protocol; and

g. On information and belief, the precise manner in which Select I/O products infringe this claim of the '567 patent will be shown by discovery, source code review and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

189. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB AB was on notice, at least as early as January 22, 2018, of the '567 Patent and knew or should have known that the Accused Products infringe the '567 Patent. Acting with such knowledge, ABB AB intentionally instructs and encourages other ABB entities, [REDACTED]

[REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

190. On information and belief, which will likely be established after a reasonable

opportunity for further investigation or discovery, ABB AB contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB AB, knowing of the '567 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities such as ABB Inc. and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] [REDACTED] to enable them to infringe the '567 Patent.

191. ABB AB's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB AB damages sustained as a result of ABB AB's infringement of the '567 patent.

192. ABB AB's acts of infringement of the '567 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB AB's infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT VIII
ABB AB's Infringement of the '769 Patent

193. Emerson incorporates by reference the foregoing paragraphs 1-192 of the Complaint as though fully set forth herein.

194. ABB AB has infringed, directly or indirectly, and continues to infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB Inc., ABB Ltd, and ABB Automation GmbH.

195. ABB AB has also infringed individually, directly or indirectly, and continue to

infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by using the Accused Products and by inducing and contributing to ABB Inc.'s and ABB Automation GmbH's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

196. Claim 1 of the '769 patent states:

1. An apparatus, comprising:

a base comprising:

a first physical interface to be communicatively coupled to one of a first field device in a process control system or a second field device in the process control system; and

a second physical interface to be communicatively coupled to a controller in the process control system via a bus; and

a module to be removably attached to the base, the module to communicate with the first field device using a first communication protocol when the first physical interface is communicatively coupled to the first field device, the module to communicate with the second field device using a second communication protocol different than the first communication protocol when the first physical interface is communicatively coupled to the second field device, the module to communicate with the controller via the bus using a third communication protocol, the third communication protocol different from the first and second communication protocols.

197. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing

and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '769 patent at least as follows:

- a. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to a first and second field device in an Ability 800xA process control system;
- b. Select I/O products have a second physical interface to be communicatively coupled, by a bus, to a controller in an Ability 800xA process control system;
- c. Select I/O products include SCM modules removably attached to the base to communicate with a first field device using a first communication protocol, such as 4-20mA, when the first physical interface is communicatively coupled to a first field device and to communicate with a second field device using a second communication protocol, such as digital HART, a different communication protocol from 4-20mA, when the first physical interface is communicatively coupled to a second field device;
- d. Select I/O SCM modules communicate with the controller via the bus using a third communication protocol, such as a proprietary I/O Card protocol which is different from both 4-20mA and enhanced digital HART; and
- e. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, the precise manner in which Select I/O products infringe this claim of the '769 patent will be shown by discovery, source code review and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

198. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB AB was on notice, at least as early as January 22, 2018, of the '769 Patent and knew or should have known that the Accused Products infringe the '769 Patent. Acting with such knowledge, ABB AB intentionally instructs, encourages other ABB entities, [REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

199. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB AB contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB AB, knowing of the '769 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] to enable them to infringe the '769 Patent.

200. ABB AB's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB AB damages sustained as a result of ABB AB's infringement of the '769 patent.

201. ABB AB's acts of infringement of the '769 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMS technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB AB's infringement has and will continue to result in lost sales of not only CHARMS technology products and services, but also DeltaV distributed control system products and services.

COUNT IX
ABB AB's Infringement of the '875 Patent

202. Emerson incorporates by reference the foregoing paragraphs 1-201 of the Compliant as though fully set forth herein.

203. ABB AB has infringed, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB Ltd, ABB Inc., and ABB Automation GmbH.

204. ABB AB has also infringed, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by at least using the Accused Products, and by inducing and contributing to ABB Inc.'s and ABB Automation GmbH's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

205. Claim 8 of the '875 patent states:

8. A method comprising:

communicatively coupling a process control device to a channel of a multi-channel

input/output port of a process controller via an input/output device;

obtaining a tag for the process control device from the input/output device, wherein

obtaining the tag for the process control device from the input/output device

comprises directing an input/output gateway to sense whether the input/output

device is present, the input/output gateway to read the tag from the input/output

device when the input/output device is present;

querying based on the tag obtained from the input/output device a database of process

control routines implemented by the process controller to identify a process

control routine, the process control routine to control the process control device within a process plant; and

communicatively coupling the identified process control routine to the channel of the multi-channel input/output port based on the database query.

206. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 8 of the '875 patent at least as follows:

a. Select I/O products communicatively couples a process control device, such as a field device, to a channel of a multi-channel input/output port of a process controller via an input/output device;

b. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software automatically and digitally marshal input/output devices to the I/O Card and controller of a process control system;

c. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by obtaining a tag for a process control device from the input/output device by sensing its presence and reading its identification tag;

d. On information and belief, Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software use a gateway to sense the presence of an input/output device and read its identification tag;

e. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by querying, based on the input/output device's tag, a database of process control routines implemented by the controller to control the input/output device;

f. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by communicatively coupling the identified process control routine to the channel of the multi-channel input/output port based on the database inquiry; and

g. On information and belief, the precise manner in which Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software infringe this claim of the '875 patent will be shown by discovery, source code review and examination and evaluation of a sample of Select I/O products and ABB's xStream Engineering software, including, but not limited to, firmware and software.

207. On information and belief, subject to discovery, ABB AB was on notice, at least as early as January 22, 2018, of the '875 Patent and knew or should have known that the Accused Products infringe the '875 Patent. Acting with such knowledge, ABB AB intentionally instructs and encourages other ABB entities, [REDACTED]

[REDACTED]
and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

208. On information and belief, ABB AB contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial

non-infringing use. ABB AB, knowing of the '875 Patent and with specific intent to cause others to directly infringe it, offers to sell the Accused Products through other affiliated entities and/or to authorized resellers and/or to [REDACTED] [REDACTED] to enable them to infringe the '875 Patent.

209. ABB AB's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB AB damages sustained as a result of ABB AB's infringement of the '875 patent.

210. ABB AB's acts of infringement of the '875 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB AB's infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT X
ABB Automation GmbH's Infringement of the '567 Patent

211. Emerson incorporates by reference the foregoing paragraphs 1-210 of the Complaint as though fully set forth herein.

212. ABB Automation GmbH has infringed, directly or indirectly, and continue to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by making, using, selling, offering to sell, and/or importing the Accused Products at least as part of the joint enterprise with ABB AB, ABB Inc., and ABB Ltd.

213. ABB Automation GmbH has also infringed individually, directly or indirectly, and continue to infringe, at least claim 1 of the '567 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by offering to sell the Accused Products, and by inducing and contributing to ABB Inc.'s and ABB AB's infringing acts of making, using, selling,

offering to sell, and/or importing the Accused Products.

214. Claim 1 of the '567 patent states:

1. An apparatus to communicatively couple field devices to a controller in a process control system, the apparatus comprising:

a base comprising:

a first physical interface to be communicatively coupled to different types of field devices and exchange communications with one or more of the field devices via a plurality of different communication protocols; and

a second physical interface to communicatively couple the base to a bus to communicate with the controller; and

a module removably attachable to the base and to communicate with the controller via the second physical interface of the base, the module comprising:

a connector to communicatively couple the module to the base; and

a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols.

215. On information and belief, which will likely be further established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '567 patent

at least as follows:

- a. Select I/O products are apparatuses for communicatively coupling field devices to a controller in process control system;
- b. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to the devices to exchange communications using a plurality of communication protocols;
- c. Select I/O bases have a second physical interface which communicatively couples the base to a bus to communicate with a controller;
- d. Select I/O products use SCM modules removably attachable to the base and to communicate with the controller via the second physical interface of the base;
- e. Select I/O SCM modules have a connector to communicatively couple the module to the base, because to achieve ABB's claimed functionality its SCM modules must connect communicatively to its Select I/O bases similar or identical to CHARMs bases;
- f. Select I/O SCM modules have a processor to be in communication with the first physical interface and configured to encode first information from any of the different types of field devices for communication via the bus using a second communication protocol different from the plurality of different communication protocols, because on information and belief SCM modules process field device data into the I/O Card communication protocol; and
- g. On information and belief, the precise manner in which Select I/O products infringe this claim of the '567 patent will be shown by discovery, source code

review, and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

216. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Automation GmbH was on notice, at least as early as January 22, 2018, of the '567 Patent and knew or should have known that the Accused Products infringe the '567 Patent. Acting with such knowledge, ABB Automation GmbH intentionally instructs and encourages other ABB entities, [REDACTED]

[REDACTED], and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

217. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Automation GmbH contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Automation GmbH, knowing of the '567 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] to enable them to infringe the '567 Patent.

218. ABB Automation GmbH's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Automation GmbH damages sustained as a result of ABB Automation GmbH's infringement of the '567 patent.

219. ABB Automation GmbH's acts of infringement of the '567 patent have caused,

and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Automation GmbH's infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

COUNT XI
ABB AUTOMATION GMBH's Infringement of the '769 Patent

220. Emerson incorporates by reference the foregoing paragraphs 1-219 of the Complaint as though fully set forth herein.

221. ABB Automation GmbH has infringed, directly or indirectly, and continues to infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB Inc., ABB AB, and ABB Ltd.

222. ABB Automation GmbH has also infringed individually, directly or indirectly, and continue to infringe, at least claim 1 of the '769 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, by offering to sell the Accused Products, and by inducing and contributing to ABB Inc.'s and ABB AB's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

223. Claim 1 of the '769 patent states:

1. An apparatus, comprising:

a base comprising:

a first physical interface to be communicatively coupled to one of a first field device in a process control system or a second field device in the process control system; and

a second physical interface to be communicatively coupled to a controller in the

process control system via a bus; and
a module to be removably attached to the base, the module to communicate with the first field device using a first communication protocol when the first physical interface is communicatively coupled to the first field device, the module to communicate with the second field device using a second communication protocol different than the first communication protocol when the first physical interface is communicatively coupled to the second field device, the module to communicate with the controller via the bus using a third communication protocol, the third communication protocol different from the first and second communication protocols.

224. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and claims, the Accused Products infringe at least claim 1 of the '769 patent at least as follows:

- a. Select I/O products have a base with a first physical interface, including terminals to which field device wires are connected, which communicatively couples the interface to a first and second field device in an Ability 800xA process control system;
- b. Select I/O products have a second physical interface to be communicatively coupled, by a bus, to a controller in an Ability 800xA process control system;
- c. Select I/O products include SCM modules removably attached to the base to communicate with a first field device using a first communication protocol, such as 4-

20mA, when the first physical interface is communicatively coupled to a first field device and to communicate with a second field device using a second communication protocol, such as digital HART, a different communication protocol from 4-20mA, when the first physical interface is communicatively coupled to a second field device;

d. Select I/O SCM modules communicate with the controller via the bus using a third communication protocol, such as a proprietary I/O Card protocol which is different from both 4-20mA and enhanced digital HART; and

e. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, the precise manner in which Select I/O products infringe this claim of the '769 patent will be shown by discovery, source code review, and examination and evaluation of a sample of Select I/O products, including, but not limited to, firmware and software.

225. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Automation GmbH was on notice, at least as early as January 22, 2018, of the '769 Patent and knew or should have known that the Accused Products infringe the '769 Patent. Acting with such knowledge, ABB Automation GmbH intentionally instructs, encourages, and or controls other ABB entities, [REDACTED]

[REDACTED] and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

226. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, ABB Automation GmbH contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and

components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Automation GmbH, knowing of the '769 Patent and with specific intent to cause others to directly infringe it, offers to sell and sells the Accused Products to other ABB entities and/or to authorized resellers and/or to the Accused ABB Entities' [REDACTED] to enable them to infringe the '769 Patent.

227. ABB Automation GmbH's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Automation GmbH damages sustained as a result of ABB Automation GmbH's infringement of the '769 patent.

228. ABB Automation GmbH's acts of infringement of the '769 patent have caused, and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Automation GmbH's infringement has and will continue to result in lost sales of not only CHARMs technology products and services, but also DeltaV distributed control system products and services.

COUNT XII
ABB Automation GmbH's Infringement of the '875 Patent

229. Emerson incorporates by reference the foregoing paragraphs 1-228 of the Compliant as though fully set forth herein.

230. ABB Automation GmbH has infringed, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally and/or under the doctrine of equivalents, making, using, selling, offering to sell, and/or importing the Accused Products at least as part of a joint enterprise with ABB AB, ABB Inc., and ABB Ltd.

231. ABB Automation GmbH has also infringed individually, directly or indirectly, and continues to infringe, at least claim 8 of the '875 patent under 35 U.S.C. § 271, literally

and/or under the doctrine of equivalents, by offering to sell the Accused Products, and by inducing and contributing to ABB Inc.'s and ABB AB's infringing acts of making, using, selling, offering to sell, and/or importing the Accused Products.

232. Claim 8 of the '875 patent states:

8. A method comprising:

communicatively coupling a process control device to a channel of a multi-channel

input/output port of a process controller via an input/output device;

obtaining a tag for the process control device from the input/output device, wherein

obtaining the tag for the process control device from the input/output device

comprises directing an input/output gateway to sense whether the input/output

device is present, the input/output gateway to read the tag from the input/output

device when the input/output device is present;

querying based on the tag obtained from the input/output device a database of process

control routines implemented by the process controller to identify a process

control routine, the process control routine to control the process control device

within a process plant; and

communicatively coupling the identified process control routine to the channel of the

multi-channel input/output port based on the database query.

233. On information and belief, which will likely be established after a reasonable opportunity for further investigation or discovery, supported by visual depictions and experts' inspections of the Accused Products, the Accused ABB Entities' representations in marketing and other materials, such as user manuals, as to how the Select I/O system and products work and their claimed functionality, and review of such visual depictions and marketing materials and

claims, the Accused Products infringe at least claim 8 of the '875 patent at least as follows:

- a. Select I/O products communicatively couples a process control device, such as a field device, to a channel of a multi-channel input/output port of a process controller via an input/output device;
- b. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software automatically and digitally marshal input/output devices to the I/O Card and controller of a process control system;
- c. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by obtaining a tag for a process control device from the input/output device by sensing its presence and reading its identification tag;
- d. On information and belief, Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software use a gateway to sense the presence of an input/output device and read its identification tag;
- e. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by querying, based on the input/output device's tag, a database of process control routines implemented by the controller to control the input/output device;
- f. Select I/O products used in conjunction with the Accused ABB Entities' xStream Engineering software carry out automatic digital marshalling by communicatively coupling the identified process control routine to the channel of the multi-channel input/output port based on the database inquiry; and
- g. On information and belief, the precise manner in which Select I/O

products used in conjunction with the Accused ABB Entities' xStream Engineering software infringe this claim of the '875 patent will be shown by discovery, source code review, and examination and evaluation of a sample of Select I/O products and ABB's xStream Engineering software, including, but not limited to, firmware and software.

234. On information and belief, subject to discovery, ABB Automation GmbH was on notice, at least as early as January 22, 2018, of the '875 Patent and knew or should have known that the Accused Products infringe the '875 Patent. Acting with such knowledge, ABB Automation GmbH intentionally instructs and encourages other ABB entities, [REDACTED] [REDACTED] and/or authorized resellers and/or potential customers to use the Accused Products in an infringing manner.

235. On information and belief, ABB Automation GmbH contributes to others' infringing use of the Accused Products with the knowledge that the Accused Products and components thereof are material, especially made for infringing the Asserted Patents, and not capable of a substantial non-infringing use. ABB Automation GmbH, knowing of the '875 Patent and with specific intent to cause others to directly infringe it, offers to sell the Accused Products through other entities and/or to authorized resellers and/or to ABB Automation GmbH's [REDACTED] to enable them to infringe the '875 Patent.

236. ABB Automation GmbH's acts of infringement have caused damage to Emerson, and Emerson is entitled to recover from ABB Automation GmbH damages sustained as a result of ABB Automation GmbH's infringement of the '875 patent.

237. ABB Automation GmbH's acts of infringement of the '875 patent have caused,

and will continue to cause, irreparable harm to Emerson. CHARMs technology is a key driver of sales of DeltaV distributed control systems. Hence, ABB Automation GmbH's infringement has and will continue to result in lost sales of not only CHARMs technology products and services but also DeltaV distributed control system products and services.

PRAYER FOR RELIEF

WHEREFORE, Emerson respectfully requests that the Court enter judgment in its favor, granting the following relief:

- A. Entry of a judgment that the Accused ABB Entities have infringed each of the Asserted Patents;
- B. Entry of judgment that ABB Inc. has infringed each of the Asserted Patents;
- C. Entry of judgment that ABB AB has infringed each of the Asserted Patents;
- D. Entry of judgment that ABB Automation GmbH has infringed each of the Asserted Patents;
- E. Entry of judgment that ABB Ltd has infringed each of the Asserted Patents;
- F. Entry of a preliminary and permanent injunction enjoining each the Accused ABB Entities and its officers, directors, employees, agents, consultants, contractors, suppliers, distributors, and all others acting in privity with the Accused ABB Entities from further infringement of the Asserted Patents;
- G. Entry of a judgment that the each of Accused ABB Entities' infringement of the Asserted Patents has been and continues to be willful;
- H. Entry of an award to Emerson of damages adequate to compensate it for the infringement of the Asserted Patents by each of the Accused ABB Entities, in an amount to be proven at trial, together with pre-judgment and post-judgment interest and costs, as fixed by the Court;

I. Trebling the damages due to each the Accused ABB Entities willful infringement under 35 U.S.C. § 284;

J. Entry of a finding that, with respect to each the Accused ABB Entities, this case has been exceptional and awarding to Emerson its reasonable costs and attorney fees under 35 U.S.C. § 285;

K. Entry of an award to Emerson of its costs in this action; and

L. A grant to Emerson of such further relief that the Court deems just.

JURY DEMAND

Plaintiffs demand a jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

Dated: August 30, 2019

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 30th day of August, 2019, the foregoing was filed electronically with the Clerk of the Court and to be served via the Notice of Electronic Filing from the Court's Electronic Filing System upon all counsel of record.

/s/ Steven E. Holtshouser